Space Weather Forecast

Issued on Sunday, 08 September 2024 at 00:23 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of G1 Minor Storms Day 1 (08 Sep). Moderate class flares remain likely throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Moderate with one long duration Moderate flare from one of the sunspots on the southern disc at 07/0746 UTC. There are ten sunspot regions, including this region which forms a line of small interconnected sunspots across the southern centre disc. While individually relatively simple, they likely have a stronger flare potential than would normally be expected due to being magnetically connected. The only notable growth observed was in the region in the northwest with the development of a small trailer and peripheral spots. The two regions in the southwest also have some flare potential, however these are both becoming hard to assess due to their increasing viewing angle.

Coronal mass ejections (CMEs) were observed due to the eruption of filaments near or through the southern disc sunspot regions. These are lines of material held above the solar surface that can be the source of weak solar flares and also CMEs. However these been assessed as passing well to the south of Earth. All other CMEs that have been observed are off the Earth-Sun line.

Solar Wind / Geomagnetic Activity: Slow wind conditions persisted with observed solar wind speeds easing from slightly elevated, at just over 400km/s to be at background at below 350km/s. Interplanetary Magnetic Field was Weak to Moderate with north-south component variable in direction and also mainly Weak. Geomagnetic activity was Quiet (Kp1-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) continued to slowly easing following the recent enhancements since 01 Sep. This remained well below the S1/Minor Radiation Storm level though.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate activity is likely through the period with a slight chance of isolated Strong flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Coronal hole fast wind onset is likely on day 1 (08 Sep) with slightly elevated solar winds expected. Any elevated solar winds likely easing day 2 onward (09 Sep). A spell of Active geomagnetic activity with a chance of G1 Minor Storms is likely with the onset. Otherwise mainly Quiet with isolated Unsettled spells expected.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is currently above normal background levels, but well below the S1/Minor radiation storm threshold, and is forecast to continue easing towards background. There is a slight chance of any notable solar flares resulting in further enhancements.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	30	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	70	70	70	70
Very Active	R3 to R5 X	No	10	10	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	15	15
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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